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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/651,754	08/30/2000	Michael E. Campbell	20-0139	2627

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EXAMINER
PEREZ GUTIERREZ, RAFAEL

ART UNIT	PAPER NUMBER
2686	9

DATE MAILED: 03/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/651,754	Campbell	
	Examiner	Art Unit	
	Rafael Perez-Gutierrez	2686	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 December 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office Action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 25, 2003 has been entered. **Claims 1-22** are now pending in the present application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. **Claims 1-22** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Phillips et al. (U.S. Patent # 6,072,994)**, of record, in view of **Fleeson (U.S. Patent # 6,353,846 B1)**, newly cited.

Consider **claim 1**, Phillips et al. teach a transceiver-processor building block for an electronic radio system multifunction "slice" (based on the language in the specification, the examiner interprets slice to simply mean a grouping of radio resources), the building block comprising (abstract):

a plurality of bi-directional transceivers (figure 3 and column 15 lines 55-63);

a processor coupled to the transceivers (figure 3 and column 15 lines 55-63);

a local RF control bus 326 inaccessible directly from outside the multifunction slice and coupled between the processor and the transceivers (figure 3 and column 28 lines 15-36);

a radio network bus coupled to the processor 324 (figure 3); and

a radio network bus connector coupled to the radio network bus to provide direct accessibility to the radio network bus from outside the multifunction slice (figure 3, on the right of the figure Phillips et al. show various applications connected to the bus that may be used to provide access to the multifunction slice).

However, Phillips et al. do not disclose that the plurality of bi-directional transceivers are simultaneously operable.

In the same field of endeavor, Fleeson clearly discloses as well known a software definable radio (SDR) (read as the claimed transceiver building block) that comprises, among other components, a plurality of RF modules (bi-directional transceivers) that are simultaneously

operated to offer a variety of operations or functions according to the particular needs at any given time (column 2 line 13 - column 3 line 10).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the well known teachings disclosed by Fleeson into the apparatus taught by Phillips et al. in order to increase the efficiency of the apparatus of Phillips et al. by allowing the plurality of transceivers to be simultaneously operated. Such feature would allow for efficient multi-tasking and resource sharing of the apparatus (Fleeson; column 12 line 66 - column13 line 10).

As pertaining to **claim 2**, and **as applied to claim 1 above**, Phillips et al., as modified by Fleeson, disclose that the block further comprises an external control bus coupled to the processor and an external control bus connector providing direct accessibility to the external control bus from outside the radio resources (figure 3, on the right of the figure Phillips et al. show various applications connected to the bus that may be used to provide access to the multifunction slice).

As pertaining to **claim 3**, and **as applied to claim 1 above**, Phillips et al., as modified by Fleeson, discloses that in the building block the local RF control bus carries control data from the processor to the transceivers (figure 3 and column 27 lines 45-63).

As pertaining to **claim 4**, and **as applied to claim 1 above**, Phillips et al., as modified by Fleeson, disclose that in the building block the radio network bus carries unencrypted information and is isolated from the local RF control bus (figure 3, it can be clearly seen in figure 3 of Phillips et al. that all information submitted through the network bus 324 passes

through INFOSEC modules and isolated from the RF control bus).

As pertaining to **claim 5**, and **as applied to claim 4 above**, Phillips et al., as modified by Fleeson, disclose that in the building block the radio network bus is isolated from the RF control bus with electromagnetic shielding (figure 3 and column 33 lines 33-47).

As pertaining to **claim 6**, and **as applied to claim 1 above**, Phillips et al., as modified by Fleeson, disclose that in the building block the processor includes encryption and decryption support 314, 318, etc. for each transceiver in the plurality of transceivers (figure 3 and column 42 lines 12-22).

As pertaining to **claim 7**, and **as applied to claim 1 above**, Phillips et al., as modified by Fleeson, disclose that in the building block the processor includes encryption and decryption support 314, 318, etc. for each transceiver in the plurality of transceivers (figure 3 and column 42 lines 12-22).

As pertaining to **claim 8**, and **as applied to claim 6 above**, Phillips et al., as modified by Fleeson, disclose that in the building block the processor includes multilevel security software to control the routing of data (column 43 lines 5-14 and column 45 line 17 - column 46 line 61).

As pertaining to **claim 9**, and **as applied to claim 4 above**, Phillips et al., as modified by Fleeson, disclose that in the building block the radio network bus transfers transmission coordination data and voice and user data into and out of the building block (figure 3, column 22 lines 33-61, and column 26 line 37 - column 27 lines 35).

As pertaining to **claim 10**, and **as applied to claim 3 above**, Phillips et al., as modified by Fleeson, disclose that in the building block the local RF control bus carries tuning data for the

plurality of transceivers (column 26 lines 49-61).

As pertaining to **claim 11,** and **as applied to claim 10 above**, Phillips et al., as modified by Fleeson, disclose that in the building block the local RF control bus carries intermediate frequency bandwidth information and intermediate frequency gain characteristics for the plurality of transceivers (column 26 line 37 - column 28 line 7).

As pertaining to **claim 12**, and **as applied to claim 2 above,** Phillips et al., as modified by Fleeson, disclose that in the building block the external control bus carries antenna configuration data that may be relevant in reconfiguring the antenna interface unit (AIU) (figure 3 and column 26 lines 49-61).

As pertaining to **claim 13**, and **as applied to claim 2 above**, Phillips et al., as modified by Fleeson, disclose that in the building block the external control bus carries antenna interferometer configuration and beamforming data (figure 3 and column 26 line 37 - column 27 lines 35, Phillips et al. describe that based on the type of application being used the AIU must change various signal transmission parameters).

Consider **claim 14**, Phillips et al. teach a radio system multifunction "slice" (based on the language in the specification, the examiner interprets slice to simply mean a grouping of radio resources) for supporting a predetermined number of communication threads (abstract), the multifunction slice comprising:

an RF aperture switch/transmitter interface 306 (figure 3);

a plurality of bi-directional transceivers 308 coupled to the RF aperture switch/transmitter interface 306 (figure 3 and column 15 lines 55-63);

a processor coupled to the transceivers 310, 312, etc. (figure 3 and column 15 lines 55-63);

a local RF control bus 326 inaccessible directly from outside the multifunction slice and coupled between the processor, the transceivers, and the RF aperture/transmitter interface (figure 3 and column 28 lines 15-36);

a radio network bus coupled to the processor 324 (figure 3); and

a radio network bus connector coupled to the radio network bus to provide direct accessibility to the radio network bus from outside the multifunction slice (figure 3, on the right of the figure Phillips et al. show various applications connected to the bus that may be used to provide access to the multifunction slice).

an avionics interface coupled to the processor, the avionics interface providing a core avionics network output and a core avionics network input (figure 8 and column 60 lines 26-60).

However, Phillips et al. do not disclose that the plurality of bi-directional transceivers are simultaneously operable.

In the same field of endeavor, Fleeson clearly discloses as well known a software definable radio (SDR) (read as the claimed transceiver building block) that comprises, among other components, a plurality of RF modules (bi-directional transceivers) that are simultaneously operated to offer a variety of operations or functions according to the particular needs at any given time (column 2 line 13 - column 3 line 10).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the well known teachings disclosed by Fleeson into the

apparatus taught by Phillips et al. in order to increase the efficiency of the apparatus of Phillips et al. by allowing the plurality of transceivers to be simultaneously operated. Such feature would allow for efficient multi-tasking and resource sharing of the apparatus (Fleeson; column 12 line 66 - column13 line 10).

As pertaining to **claim 15**, and **as applied to claim 14 above,** Phillips et al., as modified by Fleeson, disclose that the slice further comprises an external control bus coupled to the processor and an external control bus connector providing direct accessibility to the external control bus from outside the radio resources (figure 3, on the right of the figure Phillips et al. show various applications connected to the bus that may be used to provide access to the multifunction slice).

As pertaining to **claim 16**, and **as applied to claim 14 above,** Phillips et al., as modified by Fleeson, disclose that in the radio slice the local RF control bus is restricted to carrying control data information between the processor, the transceivers, and the RF aperture switch/transmitter interface (figure 3 and column 26 lines 10-15).

As pertaining to **claim 17**, and **as applied to claim 14 above,** Phillips et al., as modified by Fleeson, disclose that in the slice the radio network bus carries unencrypted information and is isolated from the local RF control bus (figure 3, it can be clearly seen in figure 3 of Phillips et al. that all information submitted through the network bus 324 passes through INFOSEC modules and isolated from the RF control bus).

As pertaining to **claim 18**, and **as applied to claim 17 above,** Phillips et al., as modified by Fleeson, disclose that in the slice the radio network bus transfers transmission coordination

data (figure 3 and column 26 line 37 - column 27 line 35, Phillips et al. describe that based on the type of application being used the AIU must change various signal transmission parameters), and user data into and out of the building block (figure 3, column 22 lines 33-61, and column 26 line 37 - column 27 lines 35), and the local RF control bus carries tuning data for the plurality of transceivers (column 26 lines 49-61), and carries antenna configuration data that may be relevant in reconfiguring the antenna interface unit (AIU) (figure 3 and column 26 lines 49-61).

As pertaining to **claim 19**, Phillips et al. teach a method for operating a transceiver-processor building block in an electronic radio system multifunction slice, the method comprising:

providing a plurality of bi-directional transceivers coupled to a processor (figure 3 and column 15 lines 55-63);

communicating unencrypted data to the processor over a radio network bus coupled to the processor (column 45 lines 38-51), the radio network bus coupled to a radio network bus connector providing direct accessibility to the radio network bus from outside the multifunction slice (figure 3 and column 47 lines 15-37);

processing the unencrypted data to form encrypted user data and control data (column 46 lines 7-61); and

communicating the control data to the transceivers over a local RF control bus between the processor and the transceivers 326 (figure 3 and column 26 lines 49-61), the local RF control bus inaccessible directly from outside the multifunction slice, and communicating the user data to the transceivers over bi-directional baseband interfaces (figure 3 and column 22 lines 33-61).

However, Phillips et al. do not disclose that the plurality of bi-directional transceivers are simultaneously operable.

In the same field of endeavor, Fleeson clearly discloses as well known a software definable radio (SDR) (read as the claimed transceiver building block) that comprises, among other components, a plurality of RF modules (bi-directional transceivers) that are simultaneously operated to offer a variety of operations or functions according to the particular needs at any given time (column 2 line 13 - column 3 line 10).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the well known teachings disclosed by Fleeson into the apparatus taught by Phillips et al. in order to increase the efficiency of the apparatus of Phillips et al. by allowing the plurality of transceivers to be simultaneously operated. Such feature would allow for efficient multi-tasking and resource sharing of the apparatus (Fleeson; column 12 line 66 - column13 line 10).

As pertaining to **claim 20**, and **as applied to claim 19 above**, Phillips et al., as modified by Fleeson, further disclose the step of communicating antenna configuration data over an external control bus coupled to the local RF control bus to an antenna outside the multifunction slice (column 26 line 49 - column 27 line 35).

As pertaining to **claims 21 and 22**, and **as applied to claim 19 above**, Phillips et al., as modified by Fleeson, further disclose the step of electrically isolating the network bus from the local RF control bus with electromagnetic shielding (figure 3 and column 33 lines 33-47).

Response to Arguments

4. Applicant's arguments with respect to **claims 1, 14, and 19** have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Any response to this Office Action should be **faxed to** (703) 872-9306 **or mailed to**:

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Hand-delivered responses should be brought to

Crystal Park II
2021 Crystal Drive
Arlington, VA 22202
Sixth Floor (Receptionist)

6. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Rafael Perez-Gutierrez whose telephone number is (703) 308-8996. The Examiner can normally be reached on Monday-Thursday from 6:30am to 5:00pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Marsha D. Banks-Harold can be reached on (703) 305-4379. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the receptionist whose telephone number is (703) 305-4700 or call customer service at (703) 306-0377.

Rafael Perez-Gutierrez
R.P.G./rpg

RAFAEL PEREZ-GUTIERREZ
PATENT EXAMINER

March 8, 2004